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ABSTRACT

The documents on university management listed in this report were collected by the Centre for Educational Research and Innovation. The documents are divided into 3 sections: (1) higher education planning, management and organization; (2) institutional management techniques applied to specific institutions; and (3) reference documents. Within these sections the documents are listed according to country and institution or organization of origin. (AF)

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PROGRAMME ON INSTITUTIONAL MANAGEMENT IN HIGHER EDUCATION

LIST OF DOCUMENTS

(Note by the Secretariat)

This list was compiled by Madame Viviane Fougères, Consultant to the Centre for Educational Research and Innovation under the supervision of Dr. Abdul G. Khan of the C.E.R.I. Secretariat. The current preliminary version is being circulated among the Centre's staff and among the 'Joint Projects' teams. Others outside the Programme may also find the compilation useful for their own work.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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INTRODUCTION

Over the last several months, the Centre collected a number of documents relevant to the Programme on Institutional Management in Higher Education. In addition to making requests for documents through the mail, the staff of the Centre have personally obtained the documents during their various missions to Member countries. The collection was particularly boosted as a result of a two-man C.E.R.I. Mission to Canada and the United States during February 1970.

The purpose of this List is to disseminate information on current work in the field of university management in Member countries. A vast number of the documents, particularly from the United States, are hard to come by in other Member countries. Several of these have not been published or widely circulated. Nevertheless, these documents constitute important reference material. These will be useful for the research and development effort in the field of university management at the Centre and in the Joint Projects, as well as elsewhere.

The Centre proposes to continue its effort to collect recent documents in the field. A bi-monthly addendum to this document will be issued which will include new acquisitions. We also propose to complete the annotations for the items included in future publication.

The documents are arranged under three broad headings. The first section deals with Higher Education Planning, Management and Organisation. The second section deals with Institutional Management Techniques Applied to Specific Institutions. The third section includes Reference Documents. University calendars and handbooks and programme descriptions are not included.

A detailed classification scheme used here is shown below.

CLASSIFICATION OF DOCUMENTS

1. Higher Education Planning, Management and Organisation

(a) North America

(i) United States

(ii) Canada

(b) Western Europe

(c) Documents prepared by international organisations

(i) Organisation for Economic Co-operation and Development.

- Centre for Educational Research and Innovation, Institutional Management in Higher Education.

- Other O.E.C.D.

(ii) Other international organisations

(In this section, the documents are listed alphabetically by authors except where the document is clearly identified as an institutional effort.)

2. Institutional Management Techniques Applied to Specific Institutions

(a) North America

(i) United States

(ii) Canada

(b) Western Europe

(c) Documents prepared by international organisations

(In this section, the documents are generally listed alphabetically by institution. Wherever institutional identification was not possible, the documents are listed by country.)

3. Reference Documents

(In this section, documents are listed alphabetically by author.)

The reader is referred to two previous documents of the O.E.C.D., "Systems Analysis for Educational Planning, Selected Annotated Bibliography, O.E.C.D., Paris, 1969, pp. 219, and Directory of Current Educational Models in O.E.C.D. Member Countries, Paris, November 1969, pp. 90, DAS/EID/69.79. Items listed in both these documents are also available at the Centre for Educational Research and Innovation but are not included in this List.

The recipients of this List are requested to send their comments, suggestions for inclusion of additional items and annotations of their own publications included here. Furthermore, the Secretariat will appreciate receiving two copies of documents on the subject of institutional management in higher education from individuals and organisations in Member countries of the O.E.C.D.

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1. Higher Education Planning, Management and Organisation

(a) North America

(i) United States

American Council on Education (ACE)

ACE, College and University Business Administration, Washington, D.C., 1968, pp. 289.

ACE, "Recent Findings from the ACE Research Program Implications for College Choice and Admissions", College and University, Washington, D.C., Summer 1968, pp. 341-356.

A.W. Astin, R.J. Panos, J.A. Creager, "A Program of Longitudinal Research on the Higher Education System", ACE Research Reports, Vol. 1, N° 1, 1966 pp. 42.

A.W. Astin, R.J. Panos, J.A. Creager, "Implications of a Program of Research on Student Development in Higher Education", ACE Research Reports, Vol. 2, N° 6, 1967, pp. 38.

A.E. Bayer, A.W. Astin, R.F. Boruch, "Social Issues and Protest Activity: Recent Student Trends", ACE Research Reports, Vol. 5, N° 2, 1970, pp. 33.

A.W. Astin, "A Program of Research on Student Development", The Journal of College Student Personnel, Washington, D.C., September 1968, pp. 299-307.

A.E. Bayer, A.W. Astin, R.F. Boruch, J.A. Creager, "Users' Manual, ACE Higher Education Data Bank", ACE Research Reports, Washington, D.C., Vol. 4, N° 1, 1969, pp. 90.

A.E. Bayer, D.E. Drew, A.W. Astin, R.F. Boruch, J.A. Creager, "The First Year of College: a Follow-Up Normative Report", ACE Research Reports, Washington, D.C., Vol. 5, N° 1, February 1970, pp. 72.

J.A. Creager, A.W. Astin, R.F. Boruch, A.E. Bayer, "National Norms for Entering College Freshmen - Fall 1968", ACE Research Reports, Washington, D.C., Vol. 3, N° 1, 1968, pp. 92.

J.A. Creager, A.W. Astin, R.F. Boruch, A.E. Bayer, D.E. Drew, "National Norms for Entering College Freshmen - Fall 1969", ACE Research Reports, Washington, D.C., Vol. 4, N° 7, 1969, pp. 92.

J.A. Creager, C.L. Sell; "The Institutional Domain of Higher Education: a Characteristics File for Research", ACE Research Reports, Washington, D.C., Vol. 4, N° 6, 1969, pp. 81.

R.L. Ackoff, "Toward an Idealized University", Management Science, New York, Vol. 15, N° 4, December 1968, pp. 121-131.

Advanced Systems Laboratories, "A Progress Report on the Development of a Generalized Educational Management System" New York Institute of Technology, Old Westbury, New York pp. 35.

E.B. Allen, C.H. Daniel, D.P. Jones, "An Exploratory Study of the Physical Facilities Requirements of Institutions of Higher Learning", Final Report, National Science Foundation Project, Washington, D.C., 25th August, 1969, pp. 208 and diagrams.

P. Alper, C.S. Smith, "Control Strategies for an Educational Planning Problem", Journal of the Canadian Operational Research Society, Toronto, November 1967, pp. 159-174.

By means of a simple example relating bottlenecks and performance indices it is shown how ideas from control theory may be applied to educational planning. Two different criteria for several different a priori distributions are shown to lead to markedly different optimal sequences of decisions. These optimal strategies are compared with non-optimal strategies which in some sense resemble what educational planners in the far more complex real world would be forced to do. The robustness of the solutions is tested by demonstrating that the optimum solution for one criterion can yield very poor results in another criterion.

J.R. Armstrong, "A Theoretical Model for Research in Education", U.S. Department of Health, Education and Welfare, Washington, D.C., 17th February, 1967, pp. 8.

G. Bélanger, "L'Université, une Perspective Economique", L'Actualité Economique, Montreal, October/December, 1969, pp. 488-498.

G.W. Baughman, "The Impact of Management Information Systems on Organisation and Decision Making in Institutions of Higher Education", Ohio State University, Columbus, Ohio, undated, pp. 14.

G.W. Baughman, R. Brady, "Towards a theory of University Management", Management Information Systems in Higher Education: the state of the art, Duke University Press, Durham, North Carolina, 1969, pp. 3-28.

Bureau of Education for the Handicapped, Division of Research, "A Conceptual Model for Educational Research Support", Washington, D.C., undated, pp. 13.

J.C. Calhoun, D.F. Morrison, "A Report on Total Information Systems for Colleges and Universities", Texas A. and M. University System, undated, pp. 73 and Appendices.

A.A. Canfield, C. Stack, "An Instructional Systems Approach", Howard and Smith, Inc. 1967, Educations Systems Development Division, Royal Oak, Michigan, pp. 24.

A.M. Cartter, "The Economics of Higher Education", Contemporary Economic Issues, New York, 1969, pp. 145-184.

A.M. Cartter, "Reflections on the Cost of Graduate Education", New York, August 1969, pp. 13.

A.M. Cartter, R.L. Farrell "Academic Labor Market and the Draft", The Economics and Financing of Higher Education in the United States, October 1969, pp. 357-374.

J.A. Casasco, "Current Techniques in College and University Planning", Educational Facilities Laboratory, New York, April 1969, pp. 119.

R.G. Cope, "College Press and Dropouts", paper presented at American Educational Research Association, Los Angeles, February 1969, pp. 27.

R.G. Cope, "Can Psychological Variables used by Economists Aid in Predicting College Enrollments and Persistence?", College and University, Fall 1969, pp. 35-40.

J.W. Dickey, G.R. Conner, J. Hopkins, "Campus Building Arrangements Using the Branch and Bound Technique with Subjectively Established Bounds", Virginia Polytechnic Institute, Blacksburg, Virginia, undated, pp. 18.

T. Drews, S. Drews, "HEGIS: a Report on Status and Plans", Management Information Systems in Higher Education: the state of the art, Duke University Press, Durham, North Carolina, 1969 pp. 79-108.

Educational Facilities Laboratory, "A College in the City: an Alternative", New York, March 1969, pp. 42.

P. Feldman, S. Hoenack, "Private Demand for Higher Education in the United States", U.S. Congress Hearings, Joint Economic Committee, 91st Congress, 1st Session, Washington, D.C., 1969, pp. 375-395.

R.S. Frew, V.K. Handa, G.N. Soulis, "An Approach to Planning Physical Environments", presented at 14th International Meeting of the Institute of Management Science (TIMS), Mexico City, August 1967, pp. 10.

E.G. Guba, "The Role of Educational Research in Educational Change: the United States", National Institute for the Study of Educational Change, Washington, D.C., July, 1967, pp. 100

P.W. Hamelman, "Missions, Matrices and University Management" Academy of Management Journel, March 1970, pp. 35-47.

P.W. Hamelman, "Planning and Analysis for Higher Education: Promises and Pitfalls", presented at Joint Meeting of the Operations Research Society of America, 20th June, 1969.

R.G. Hewitt, "Grades: a Need for Discussion", University of Massachusetts, Amherst, Mass., February 1968, pp. 8.

R.G. Hewitt, "The Status of Pass/Fail, Options at 22 Colleges and Universities", University of Massachusetts, Amherst, Mass. November 1967, pp. 5 and Appendices.

A.G. Holzman, W.R. Turkes, "Summary; Optimal Scheduling in Educational Institutions" University of Pittsburgh, Pittsburgh, Pennsylvania, September 1961-December 1963, pp. 14.

R.L. Johnson, "Introduction to Programs Evaluation and Review Technique, A System for the Management of Educational Programs" Stanford Research Institute, Stanford, Cal., March 1968, pp. 20.

J.A. Kershaw, E.N. McKean, "Systems Analysis and Education", Rand Corporation, Santa Monica, Cal., October 1959.

J.B. Kenney, "An Investigation into the Capabilities of the Generalized Academic Simulation Program (GASP) to Construct Three Kinds of Secondary School Time Tables", presented at the Seminar of Association for Educational Data System, 1968, pp. 20.

L.L. Lins, "Methodology of Enrollment Projections for Colleges and Universities", American Association of Collegiate Registrars and Admissions Officers, Washington, D.C., March 1960, pp. 67.

Various methods by which the responsible officials of colleges and universities might make projections of enrolment for their respective institutions are presented in this report. The point is made that institutional enrolment projection is not a simple assignment. Many factors must be considered, analyzed, and, if possible, controlled in order to do the best job of forecasting. Before making an enrolment projection, each institution should define its aims and purposes in order to identify its long range goals. The enrolment projection

techniques include a discussion of - (1) curve fitting, (2) ratio method, (3) cohort-survival method, (4) combined ratio and cohort-survival method, and (5) correlation analysis. Short range enrolment estimates for budget purposes and educational planning are discussed as are long range projection based on increasing population. A final chapter presents a brief review of guiding principles to aid the person designing tables or graphs for presentation. A substantial bibliography of books, periodicals, and reports concerned with enrolment projection is included.

J. Minter, B. Lawrence, "Management Information Systems: Their Development and Use in the Administration of Higher Education", Western Interstate Commission for Higher Education, Boulder, Colorado, October 1969, pp. 7.

J. Murphy, R. Sutter, "School Scheduling by Computer, the Story of GASP" Educational Facilities Laboratory, New York, 1964, pp. 50.

National Centre for Educational Statistics

M.O. Chandler, "Earned Degrees Conferred: 1966-67, Part B, Institutional Data", Washington, D.C., 1968, pp. 186.

M.O. Chandler, "Students Enrolled for Advanced Degrees, Part B, Institutional Data", Washington, D.C., 1968, pp. 178.

M.O. Chandler, M.C. Rice, "Opening Fall Enrolment in Higher Education, 1967", Washington, D.C., 1967, pp. 136.

H.L. Dahnke, "Facilities Classifications and Inventory Procedures for Institutions and State Agencies", undated, Washington, D.C., pp. 83.

M.E. Hooper, M.O. Chandler, "Earned Degrees Conferred 1967-68, Part A: Summary Data", Washington, D.C., May 1969, pp. 62.

M.E. Hooper, M.O. Chandler, "Earned Degrees Conferred 1967-68, Part B: Institutional Data", Washington, D.C. June 1969, pp. 263.

P.F. Mertins, "Financial Statistics of Institutions of Higher Education: Student Financial Aid: 1965-1966", Washington, D.C., 1968, pp. 63.

P.F. Mertins, "Financial Statistics of Institutions of Higher Education: Property 1965-66", Washington, D.C. 1969, pp. 123.

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N.A. Osso, C.T. Roberts, "Higher Education Facilities Classification for Inventory Procedures Manual", Washington, D.C., 1968, pp. 102.

B. Price, "Library Statistics of Colleges and Universities, Data for Individual Institutions, Fall 1967", Washington, D.C., June 1969, pp. 346.

L.W. Ramsey, "Institutions of Higher Education: Index by State and Congressional District, July 1969", Washington, D.C.

K.A. Simon, W.V. Grant, "Digest of Educational Statistics" 1969 Edition, Washington, D.C., September 1969, pp. 128.

K.A. Simon, M.G. Fullam, "Projections of Educational Statistics to 1977-78", Washington, D.C. 1969, pp. 139.

"Definitions of Student Personnel Terms in Higher Education", Washington, D.C., 1968, pp. 60.

"Questionnaires for Institutions of Higher Education" Washington, D.C. (undated).

"Manual of Academic Courses of Study" (Draft), Washington, D.C., unpublished.

The National Science Foundation, National Institutes of Health, "Final Report on the Project to Devise and Test Simplified Adequate Systems of Measuring and Reporting Financial Manpower Facilities, Research and other Activities in Colleges and Universities", Washington, D.C., undated.

New York Institute of Technology, "Generalized Educational Management System", New York, April 1969.

Peat, Marwick and Mitchell "Computer Assisted Planning for Colleges and Universities", New York, undated, pp. 12 and tables.

Peat, Marwick and Mitchell "I.B.M. Diagramming and Charting Worksheet, RAPID", New York, undated, pp. 20.

A. Reisman, M.I. Taft, "On a Computer-Aided Systems Approach to Personnel Administration", Operations Research Department, Technical Memorandum N° 147, Case Western Reserve University, Cleveland, Ohio, December 1968, pp. 16.

A. Reisman, M.I. Taft, "A Systems Approach to the Evaluation and Budgeting of Educational Programs", forthcoming in Socio-Economic Planning Sciences, pp. 161.

A. Reisman, M.I. Taft, "The Generation of Doctorates and their Feedback into Higher Education", Socio-Economic Planning Sciences, 1969, Vol. 2, pp. 473-486, Pergamon Press, Printed in Great Britain.

The dynamic effects of alternative manpower policies and programs can be "pretested" in a computer based simulation. It is generally recognized that the production of Doctorates depends to a large degree on the Doctorate-holding faculty. Because the Doctorate holders are in great demand by the other sectors of the economy, a circular or a "feedback" situation exists. The problem is further complicated by the availability of developed student talent and by various socio-economic conditions existing at different periods of time within two or three decades prior to the time a study is made.

This paper attempts to develop a conceptual and a mathematical model to study the production of Doctorates, Masters' and Baccalaureate degrees and their feedback into higher education. The model consisting of over 200 non-linear difference equations is programmed for computer simulation and validation against historical data. Currently simulation is used to describe what has happened in the past. Once this phase is accomplished, the model can be used to prescribe what will happen in the future with a fair level of confidence.

P.J. Runkel, "Some Recent Ideas in Research Methodology", University of Oregon, Eugene, Oregon, March 1965, pp. 39.

This paper was presented at a conference on "New Directions in Research on Educational Administration". Two schemes of research methodology were discussed. The first idea was "facet design and analysis" originated by Louis Guttman.

Facet design was defined as a way of laying out a domain for research, while facet analysis enables one to test the validity of the assessment of the entire domain. The second scheme was "Theory of Data" by Clyde Coombs. This deals with the stages of gathering data out of observations and of making variables. The phases discussed in the "Theory of Data" here (1) selecting a domain of investigation, (2) recording observations, (3) converting observations into data, (4) classifying the individuals or objects (scaling), and (5) seeking relations among variables. These schemes were suggested to be of use as tools by those who will be developing new methods in research.

C.W. Scarborough, J.N. Daniel, "Management Use of Simulation in Long-Range Planning for Colleges and Universities", paper presented at TIMS/ORSA Meeting, San Francisco, 1st May, 1968, Peat, Marwick and Livingston, pp. 23.

T.W. Schultz, "Resources for Higher Education: an Economist's View", Journal of Political Economy, Chicago, 1968, pp. 327-347.

R.L. Sisson, "A Model of a School", University of Pennsylvania, University Park, Pennsylvania, September 1968, pp. 22.

R.L. Sisson, "Can we model the Educational Process?", Socio-Economic Planning Science, Vol. 2, 1969, pp. 109-119, Pergamon Press.

Stanford Research Institute, "Conceptual Design, Development and Test of an Integrated Management Information System", Menlo Park, California, March 1965, pp. 75 and Appendix.

M.I. Taft, "Design for Education: a Systems Approach, "Engineering, A Look Inward and a Reach Outward", University of Wisconsin, Milwaukee, Wisconsin, Summer 1967, pp. 41-60.

M.I. Taft, A. Reisman, "Computer Time Saving Applications in Economic Analysis: An Integrated Approach", Operations Research Department, Case Western Reserve University, Cleveland, Ohio, June 1969, pp. 37.

M.I. Taft, A. Reisman, "Toward Better Curricula through Computer Selected Sequencing of Subject Matter", Management Science, Vol. 13, N° 11, July 1967, Cleveland, Ohio, pp. 926-945.

I.B. Turksen, A.G. Holzman "Micro-Level Resource Allocation Models for Universities", 37th Annual Meeting, Operations Research Society of America, Washington, D.C., 20th-22nd April, 1970, pp. 40.

C.R. Walker, "The Theory and Practice of College Accounting", State Council of Higher Education for Virginia, Richmond, Va. August 1966, pp. 24.

Western Interstate Commission for Higher Education (WICHE)

Advanced Applied Management Information Systems in "Higher Education: Case Studies, WICHE-ACE Higher Education Management", Washington, D.C., April, 1969 pp. 15 and Exhibits.

"Management Information Systems: their Development and use in the Administration of Higher Education", Boulder, Colorado, October 1969, pp. 114.

"Focus on MIS: a report on the WICHE-ACE Higher Education Management Systems Seminar", Boulder, Colorado, October 1969, pp. 22.

"Project Description, SAM, Space Analysis Manual Project", Boulder, Colorado, November 1969, pp. 19.

"Data Element Dictionary: Students", Management Information Systems Program, Boulder, Colorado, June 1969, pp. 37.

"Data Element Dictionary: Staff", Management Information Systems Program, Boulder, Colorado, October 1969, pp. 38.

"Phase II Objectives and Time Schedule of the WICHE Management Information Systems Program", Boulder, Colorado, May 1969, pp. 9.

P. Wing, M.S. Blumberg, "Operating Expenditures and Sponsored Research at U.S. Medical Schools; An Empirical Study of Cost Patterns", 5th May, 1969, pp. 39. Berkeley, California.

D.R. Witmer, "Research and Dissertation Proposal: the Value of College Education", Wisconsin State Universities, Milwaukee, Wisconsin, undated, pp. 97.

F.B. Womer, "The National Assessment of Educational Progress: Concept and Organization", Capsule, Winter 1970, Vol. 3, N° 2, pp. 1-7, University of Michigan, Ann Arbor, Michigan.

(ii) Canada

Universities of Ontario

Committee of Presidents of Universities of Ontario, "Brief to the Committee on University Affairs, Estimate of Operating Grants for 1970-71", Toronto, December 1969, pp. 54.

Committee of Presidents of Universities in Ontario, "Proposal for a Central Data Bank on Students and Resources of Ontario Universities", Toronto, 26th November, 1969, Part 1, pp. 71, Part 2, pp. 46.

Ontario Department of University Affairs, "Horizons, a Guide to Educational Opportunities in Ontario for 1970-71 Beyond the Secondary School Level", Toronto, undated, pp. 103.

Brief of the Structure and Operation of the Operating Grants Formula for the Provincially Assisted Universities of Ontario, 1967-68 through 1969-70", Toronto, undated, pp. 14.

W.P. McReynolds, "A Model for the Ontario Educational System", Toronto, November 1969, pp. 177.

> The report has two principal parts; a general flow model of an educational system and its application to secondary school in Ontario, and a set of sub-models which are concerned with the transition by students from the final grade of secondary school to the first year of tertiary education.
>
> In the first of these major sections, the mathematical structure of the basic flow model is introduced and some problems of implementation are mentioned. The basic model is demonstrated by its application to the system of secondary education in Ontario around 1960. The main data source, the Carnegie Study of Identification and Utilization of Talent in High School and College, is described, as is a unique method developed by the author called the "method of synthetic cohorts", by which the principal variables of the model, the transition proportions, are obtained. Matrices of transition proportions for males and females in the system are given, and simulated enrolments are compared with actual enrolments over a period of several years. The population is partitioned into various categories or classes on the basis of certain attributes such as sex, educational achievement of a parent, community, etc., and a separate transition matrix is given for each population category. Certain revealing differences between the matrices of the different groups are discussed.

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The Conference of Rectors and Principals of Quebec Universities, "Interdependence and Harmonization, 1st Annual Report", Montreal, October 1969, pp. 82.

GRESIGU (Groupe de Recherches et d'Elaboration d'un Système d'Information de Gestion Universitaire), "A Management Information System for Universities", Montreal, December 1969, pp. 8.

(b) Western Europe

Battelle Institute, "Synthesis of Research Undertaken into Methodology with the EXPLOR 75 Programme", Geneva, undated, pp. 43.

L. Dotti, "Modèle Démographique - Méthodologie et Résultats" - Exposés de la 2ème Réunion Sociometrica 80, Battelle Institute, Geneva, November 1969, pp. 3-13.

A. Gabus, "Emploi, Education et Budgets-Temps", Exposés de la 2ème Réunion Sociometrica 80, Battelle Institute, Geneva, November 1969, pp. 14-26.

P. Daumard, "Le Prix de l'Enseignement en France", Calmann-Lévy, Paris, 1969, pp. 269.

E. Faure, "Transformations in Society and the Replanning of Education", Bilderberg Meetings, April 1970, pp. 27.

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Deutscher Wissenschaftsrat, "Quantitative Uberlegungen zur Struktur des Bildungswesens" (Quantitative Analysis of the Structure of Higher Education), Bonn, October 1969, pp. 165.

W. Krönig, "Higher Education Information System (HIS) for the Federal Republic of Germany and West Berlin", undated, pp. 22.

Ständige Konferenz der Kulturminister der Länder in der Bundesrepupblik Deutschland, "The Development of Student Numbers and the Demand for Places at Universities until 1980" (in German), Bonn, October 1969, pp. 32 and appendices.

"Third Report of the Federal Government on Research", Federal Republic of Germany, Federal Ministry for Education and Science, Bonn, November 1969, pp. 107.

J. De Bruyn, "A Modern System of Educational Statistics, the Matrix Method", Central Bureau of Statistics, The Hague, undated, pp. 50.

Centraal Planbureau, "Planning and Development in the Netherlands", Vol. III, The Hague, 1969, pp. 186.

"Feasibility Study of Data Comparison System for Academic Institutions in Holland", Arthur D. Little, The Hague, April 1970, pp. 98.

"Information Schedule on Availability of Data, Forms A to D and Loose Sheets", Amsterdam, undated, pp. 16.

Report of the University Advisory Council, "Needs and Supplies until 1980" (Dalmulder Report), The Hague, July 1968, pp. 35.

Report of the University Advisory Council: "Definiton of Personnel Needs of Universities", The Hague, July 1969, pp. 23.

Report of the University Advisory Council, "Definition of Personnel Needs of Universities", The Hague, February 1970, pp. 105.

Report of the University Advisory Council, "Organisation Structures and Procedures of Universities" (Maris Report), The Hague, February 1968, pp. 36.

Netherlands Central Bureau of Statistics, "Statistics on Primary Education 1968-69", The Hague, 1970, pp. 22.

Netherlands Central Bureau of Statistics, "Statistics on Vocational Training 1968-69, Technical Training", The Hague, 1969, pp. 95.

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G.H. Veringa, "Memorandum on Organisation of Universities and Colleges", The Hague, 27th June, 1969, pp. 14.

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2. Institutional Management Techniques Applied to Specific Institutions

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M.S. Blumberg, "Two Year Medical Programs at the University of California", Berkeley, September 1969, pp.38.

N.H. Branchflower, "A Case Study of the Distribution of Faculty within the College of Engineering at the University of California, Berkeley, for the Period 1960-1968", Administrative Studies Project in Higher Education, Berkeley, December 1969, pp.21.

> The movement of faculty within the College of Engineering at the University of California, Berkeley, is analysed for the nine-year period 1960 - 1968. Movements within the system and between the system and the outside world are assumed to be homogeneous over time. Faculty promotions and departures from various ranks are determined by aggregating yearly totals. These aggregates are then used to estimate the transition matrix of a Markov Chain model that predicts future faculty distributions based upon present distributions and known appointment policies. Predicted distributions for the years 1966 - 1968 are compared with actual data.

D. Breneman, "The Stability of Faculty Input Coefficients in Linear Workload Models of the University of California", Berkeley, April 1969, pp.24.

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D.S.P. Hopkins, "An Analysis of University Year-Round Operation", Administrative Studies Project in Higher Education, Berkeley, December 1969, pp.26.

The implementation of year-round operation has often been suggested as a means for increasing the graduation rate of a university campus of fixed size. This paper demonstrates how the graduation rate may be computed as a function of the proportion of students who belong to various cohorts with common workload requirements and attendance patterns. Data gathered at the University of California Berkeley campus is then used to estimate these proportions for a campus which offers a year-round programme and does not attempt to exert control over student attendance patterns. From these estimates is derived a value for the overall graduation rate and the ratio of summer enrolment to average non-summer enrolment. These values are compared with those obtained for a campus which does not offer a year-round programme of instruction. A sensitivity analysis investigates the effect of an increasing proportion of accelerating students upon the graduation rate.

J.E. Keller, "Higher Education Objectives : Measures of Performance and Effectiveness, Berkeley, July 1969, pp.12.

J.E. Keller, "Effective Resource Allocation in Higher Education", Berkeley, October 1967, pp.19.

F.L. Leimkuhler, M.D. Cooper, "Analytical Planning for University Libraries", Berkeley, January 1970, pp.50.

A survey is made of the more important technological and managerial problems in the planning of university library services and recommendations are made for a positive programme of innovation and development. Two approaches are explored in considerable detail. The first is the use of operations research models of the acquisition and storage functions. Elementary models and decision rules, based on the assumptions of exponential growth, independence of item usage, and obsolescence, are used to minimize average costs of circulation and to suggest more general models for library services.

This is an exploratory study of the problems in library planning. This report does not pretend to offer a definitive statement on the subject; it does not provide any well-tested models, data for the design of library systems, nor a thorough analysis of jointly dependent items. It does attempt an assessment of the current state of the art and to identify some promising and different directions for the development of planning criteria and techniques of analysis.

F.L. Leimkuhler, M.D. Cooper, "Cost Accounting and Analysis for University Libraries", Berkeley, January 1970, Parts 1 and 2.
The approach to library planning studied in this Report is the use of accounting models to measure library costs and implement programme budgets. A cost-flow model for a university library is developed and tested with historical data from the Berkeley General Library. Various comparisons of an exploratory nature are made of the unit costs for different parts of the Berkeley system.

K.T. Marshall, R.M. Oliver, "A Constant Work Model for Student Attendance and Enrolment", Berkeley, February 1969, pp.18.

K.T. Marshall, R.M. Oliver, S.S. Suslow, "Undergraduate Enrolments and Attendance Patterns", Berkeley, March 1970, pp.51.
Several Markov enrolment models that have been proposed in the literature are used to predict student attendance patterns and forecast undergraduate enrolments. Theoretical results are compared with data from the Berkeley campus of the University of California for the period 1955 - 1966.

R.M. Oliver, "Models for Predicting Gross Enrolments at the University of California", Berkeley, 1968, pp.23.

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This paper develops a simple deterministic model that relates student admissions and enrolments to the final demand for educated students. It includes the effects of drop-out rates and student-teacher ratios upon student enrolments, faculty staffing levels, and indices that measure academic and institutional productivity. Certain technological requirements are known and given. These, as well as the laws of flow conservation and the relationships between equilibrium inventory levels and average flow rates, are used in the model to predict the important effects of specific administrative policies and institutional controls at the campus level.

R.D. Sanderson, "The Expansion of University Facilities to Accommodate Increasing Enrolments", Berkeley, November 1969, pp.36.
A mathematical model is developed for the expansion of facilities at different campuses of the University of California for a given sequence of

enrolment forecasts. Based on total projected enrolments for the University system, the model, computes a minimum total cost expansion programme, i.e., the stages at which to expand existing campuses or to build new ones, and the enrolments that should be allocated to those campuses. It is formulated as a network flow problem in which nonzero flows on certain arcs incur fixed charges; a minimum cost flow is found by a branch-and-bound technique. The model does not include such factors as graduate-undergraduate mix, departmental mix, departmental sizes, or restrictions on tenure faculty, but rather is oriented towards a method of accommodating gross enrolments.

D. Smith, "Optimal Class Scheduling", paper presented at 55th Annual Meeting of American Association of College Registrars and Admissions Officers, Dallas, Texas, April 1969, pp.12.

R.L. Smith, "Accommodating Student Demand for Courses by Varying the Classroom Size Mix", Berkeley, April 1970, pp.25.
A statistical model is constructed that measures the ability of a given mix of classroom sizes to accommodate student demand for courses. Assuming known demand distributions, the model computes the probability that a course-to-classroom assignment can be made in such a way that the number of students assigned to any classroom does not exceed the number of seats in that classroom.

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G. Weathersby, "University Cost Simulation Model", Berkeley, September 1966, pp.34.

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The Georgia Educational Model programme for teacher education, (one of nine development projects funded by the Research Branch--U.S.O.E.) has developed a model for the training of elementary teachers (pre-service and inservice). Teacher performance behaviours and a teacher job analysis provide the foundation on which the model is built, and system analysis was the technique utilized for the programme.

The rationale for the development of the model is based on the hypothesis that an effective teacher education programme is built upon the job which the teacher performs. Determining what the teacher does required the sequential development of goals, objectives, and pupil learning behaviours for the elementary school. Pupil learning behaviours provided a primary basis for ascertaining teacher teaching behaviours and, consequently, a teacher job analysis. Finally, teacher performance specifications were developed that provide the objective and content for the teacher education programme.

The products of the project include, in addition to the teacher performance specifications, specifications for the selection of candidates for the programme; for evaluation of the total programme; and for implementation of a programme based on the teacher performance specifications.

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>
> A pricing procedure, on the other hand, addresses itself toward the effective allocation of resources, and in particular a flexible pricing procedure concerns itself with the timing with which those resources are provided. This paper discusses the considerations which are involved in developing a flexible pricing procedure to serve these purposes and describes an experiment, currently being conducted, in which such a pricing procedure is being employed in the operation of a major computer centre.

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ORGANISATION FOR ECONOMIC
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Centre for Educational Research
and Innovation

RESTRICTED

Paris, 1st September, 1970

CERI/IM/70.14 Addendum I

Engl. only

PROGRAMME ON INSTITUTIONAL MANAGEMENT

IN HIGHER EDUCATION

(Joint Project CERI XVII)

List of Documents

(Note by the Secretariat)

This Addendum was compiled by Madame Viviane Fougères, Consultant to the Centre for Educational Research and Innovation, under the supervision of Dr. Abdul G. Khan of the C.E.R.I. Secretariat. The current list is the first bi-monthly supplement to the List of Documents issued on 1st July, 1970.

CLASSIFICATION OF DOCUMENTS

1. Higher Education, Planning, Management and Organisation

   (a) North America
      (i) United States
      (ii) Canada

   (b) Western Europe

   (c) Documents prepared by international organisations:
      (i) Organisation for Economic Co-operation and Development
         - Centre for Educational Research and Innovation, Institutional Management in Higher Education
         - Other O.E.C.D.
      (ii) Other international organisations

(In this section, the documents are listed alphabetically by authors except where the document is clearly identified as an institutional effort).

2. Institutional Management Techniques Applied to Specific Institutions

   (a) North America
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